New Missions to Venus: NASA

Why in News

Recently, the **National Aeronautics and Space Administration (NASA)** announced **two new robotic missions to Venus.**

- Earlier, scientists obtained **new data about Venus by bouncing radio waves** off the planet.

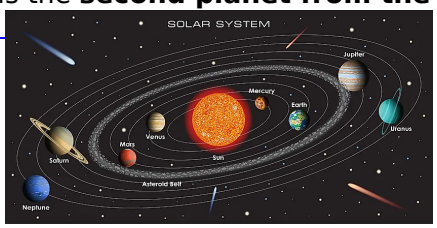
Key Points

- **Aim:**
  - The two sister missions aim to **understand how Venus became an inferno-like world capable of melting lead at the surface.**
- **About:**
  - **DaVinci Plus:**
    - It will be the first of the two, **it will analyze the thick, cloudy Venusian atmosphere** in an attempt to **determine whether the inferno planet ever had an ocean and was possibly habitable.** A small craft will plunge through the atmosphere to measure the gases.
  - **Veritas:**
    - It will be the second one seeking a **geologic history by mapping the rocky planet's surface.**
- **Significance:**
  - The new missions will **give fresh views of the planet's atmosphere, made up mostly of carbon dioxide, down to the core.**
- **Previous Missions:**
  - **US:**
    - **Mariner** series 1962-1974, **Pioneer** Venus 1 and Pioneer Venus 2 in 1978, Magellan in 1989.
  - **Russia:**
    - **Venera** series of space crafts 1967-1983, **Vegas** 1 and 2 in 1985.
  - **Japan:**
    - **Akatsuki** in 2015.
  - **Europe:**
    - **Venus Express** in 2005.
- **Indian Initiative:**

- India plans to launch a new orbiter named **Shukrayaan** to Venus in 2024.

Venus

- **About:**
  - It is named after the Roman goddess of love and beauty. It is the **second planet from the Sun and sixth in the solar system in size and mass.** //



  - It is the **second brightest** natural object in the night sky **after the Moon**, probably that is the reason why it was the **first planet to have its motions plotted across the sky**, as early as the second millennium BC.
  - Unlike the other planets in our solar system, **Venus and Uranus spin clockwise** on their axis.
  - It is the **hottest planet** in the solar system because of the **high concentration of carbon dioxide** which works to produce an intense greenhouse effect**.**
  - A **day on Venus is longer than a year.** It takes Venus **longer to rotate once on its axis than to complete one orbit of the Sun.**
    - That's **243 Earth days to rotate once** - the longest rotation of any planet in the Solar System - and only **224.7 Earth days to complete one orbit of the Sun.**
- **Venus & Earth:**
  - Venus has been called **Earth's twin** because of the **similarities in their masses, sizes, and densities and their similar relative locations** in the solar system.
  - No planet approaches closer to Earth than Venus; at its nearest **it is the closest large body to Earth other than the Moon.**
  - Venus has **90 times the atmospheric pressure of Earth.**
- **Reason For Studying Venus:**
  - It will help to learn **how Earth-like planets evolve and what conditions exist on Earth-sized** exoplanets (planets that orbit a star other than our sun).
  - It will help in modelling **Earth's climate**, and serves as a cautionary tale on how dramatically a planet's climate can change.

Source:IE